

REMARKS

Claim 1 has been amended and constitutes no new matter, support for which can be found in the specification and drawings. Claims 2 and 3 have been canceled. Claims 1, 4, and 5 will be pending after entry of the present amendment.

Claim Rejections – 35 USC § 103

The Examiner has rejected claims 1, 4 and 5 as being unpatentable over Panzani (5,039,482) in view of U.S. Patent No. 4,610,656 to Mortensen. Claim 1 has been amended to include the limitations contained in canceled claims 2 and 3. Additionally, claim 1 has been amended to recite that the centrifugal blood pump is positioned in the monolithic housing such that “the outlet of the centrifugal blood pump is located at a top portion of the second portion of the monolithic housing.” Applicants respectfully traverse this rejection as applied to amended claim 1 and claims 4 and 5 which depend therefrom.

Neither Panzani nor Mortensen disclose an integrated device that includes a centrifugal blood pump that is positioned such that its axis is horizontal and its blood outlet is located at a top of the housing as recited in claim 1. Therefore, Applicants respectfully request that this rejection of claim 1 be withdrawn.

Claims 4 and 5 depend from claim 1 and add further limitations. Claims 4 and 5 are allowable for at least the same reasons set forth above with respect to claim 1. Therefore, Applicants request that the rejections of claims 1, 4 and 5 be withdrawn.

The Examiner has rejected claims 2 and 3 under 35 USC § 103(a) as being unpatentable over Panzani in view of Mortensen, and further in view of Izraeliev

(5,924,848). Claims 2 and 3 have been canceled. Claim 1 has been amended to include the limitations claims 2 and 3. Applicants traverse this rejection as applied to amended claim 1.

As set forth above amended claim 1 includes the limitations of canceled claims 2 and 3 which recited that the device includes a centrifugal pump (claim 2) that is positioned within the monolithic housing such that the axis of the centrifugal pump is horizontal (claim 3). Claim 1 as amended further requires that the outlet of the centrifugal pump be located at a top of the second portion of the monolithic housing.

The Examiner acknowledges in the Office Action that Panzani does not teach a centrifugal pump. The Examiner, however, states that Izraelev teaches a centrifugal pump, and further, that the axis of the centrifugal pump may be horizontal or vertical. Thus, the Examiner concludes that it would have been obvious to one of ordinary skill in the art to modify Panzani to include the axis of the centrifugal pump being vertical or horizontal, as taught by Izraelev, to provide for flexibility in positioning the pump, as taught by Izraelev.

Applicants submit that Izraelev includes no disclosure nor teaching that would lead a person of skill in the art to modify Panzani as required by claim 1. Izraelev discloses a centrifugal pump having a gyroscopic feature that stabilizes the impeller when the axis of the housing is rotated relative to the spin axis of the rotor. (Izraelev, col. 3, lines 52 to 56). In describing this feature Izraelev states that “the spin axis of the rotor may be altered because of a change-of-position of the housing, and thus the spin axis may not always be about the vertical axis, but can be about the horizontal axis as well.” (Izraelev, col. 3, lines 55 to 59). Izraelev merely teaches that his pump remains functional even if its position is changed. Specifically, it is functional in positions where the spin axis is not vertical including where the spin axis is horizontal. This feature is significant in

Izraelev where one of the applications of the pump is for implantation within a patient. (Izraelev, col. 7, lines 28 to 31). In that application it would be important for the pump to function properly when the patient moves or changes positions. Izraelev does not teach that there is any reason, advantage or benefit of using the pump with its axis of rotation horizontal. Therefore, Izraelev provides no reason for a person of skill in the art to modify Panzani to use a centrifugal pump positioned with its axis horizontal.

Additionally, as amended claim 1 recites that the outlet of the pump is located at a top of the second portion of the monolithic housing. Neither Panzani nor Izraelev teach this feature. Based on the foregoing Applicants submit that claim 1 as amended is allowable over Panzani and Izraelev, alone or in combination.

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Respectfully submitted,

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